

AMENDMENTS TO THE CLAIMS

1-40. (Cancelled)

41. (New) A neuromodulation lead for implantation within a body of a patient, comprising:

a first plurality of conductors that are individually electrically isolated and are spirally wound along the lead in a non-overlapping manner;

a second plurality of conductors that are individually electrically isolated and are spirally wound along the lead in a non-overlapping manner and in a direction that is opposite to the spiral direction of the first plurality of conductors;

a solid matrix of fused insulative material surrounding and electrically insulating each of the first and second plurality of conductors thereby forming a lead body, wherein the solid matrix of materials (i) retains each of the first plurality of conductors at the substantially same first radial depth in the lead body, (ii) retains the second plurality of conductors at the substantially same second radial depth in the lead body, the second radial depth being underneath the first radial depth, and (iii) retains each conductor of the first and second plurality of conductors at a prescribed distance from adjacent conductors, wherein the solid matrix of fused insulative material does not possess an inter-layer boundary between the first and second radial depths; and

a plurality of electrodes with each electrode coupled to at least one conductor of the first and second plurality of conductors.

42. (New) The neuromodulation lead of claim 41 wherein the first plurality of conductors comprises eight conductors.

43. (New) The neuromodulation lead of claim 42, wherein the neuromodulation lead possesses a diameter less than 9 French.

44. (New) The neuromodulation lead of claim 42, wherein the neuromodulation lead possesses a diameter less than 5 French.

45. (New) The neuromodulation lead of claim 41 wherein the second plurality of conductors comprises eight conductors.

46. (New) The neuromodulation lead of claim 45, wherein the neuromodulation lead possesses a diameter less than 9 French.

47. (New) The neuromodulation lead of claim 45, wherein the neuromodulation lead possesses a diameter less than 5 French.

48. (New) The neuromodulation lead of claim 41 wherein the first and second plurality of conductors comprise sixteen conductors.

49. (New) The neuromodulation lead of claim 48, wherein the neuromodulation lead possesses a diameter less than 9 French.

50. (New) The neuromodulation lead of claim 48, wherein the neuromodulation lead possesses a diameter less than 5 French.

51. (New) A neuromodulation system, comprising:
a pulse generator for generating electrical pulses for delivery to nerve tissue of a patient; and
a neuromodulation lead for implantation within the patient and that is electrically coupled to the pulse generator for receiving the electrical pulses, the lead including:
a first plurality of conductors that are individually electrically isolated and are spirally wound along the lead in a non-overlapping manner;
a second plurality of conductors that are individually electrically isolated and are spirally wound along the lead in a non-overlapping manner and in a direction that is opposite to the spiral direction of the first plurality of conductors;
a solid matrix of fused insulative material surrounding and electrically insulating each of the first and second plurality of conductors thereby forming a lead body, wherein the solid matrix of materials (i) retains each of the first plurality of conductors at the substantially same first radial depth in the lead body, (ii) retains the second plurality of conductors at the substantially same second radial depth in the lead body, the second radial depth being underneath the first radial depth, and (iii) retains each conductor of the first and second plurality of conductors at a prescribed distance from adjacent conductors, wherein the solid matrix of fused insulative material does not possess an inter-layer boundary between the first and second radial depths; and
a plurality of electrodes with each electrode coupled to at least one conductor of the first and second plurality of conductors.
52. (New) The neuromodulation system of claim 51 wherein the first plurality of conductors comprises eight conductors.
53. (New) The neuromodulation system of claim 52, wherein the neuromodulation lead possesses a diameter less than 9 French.
54. (New) The neuromodulation system of claim 52, wherein the neuromodulation lead possesses a diameter less than 5 French.
55. (New) The neuromodulation system of claim 51 wherein the second plurality of conductors comprises eight conductors.
56. (New) The neuromodulation system of claim 55, wherein the neuromodulation lead possesses a diameter less than 9 French.

57. (New) The neuromodulation system of claim 55, wherein the neuromodulation lead possesses a diameter less than 5 French.

58. (New) The neuromodulation system of claim 51 wherein the first and second plurality of conductors comprise sixteen conductors.

59. (New) The neuromodulation system of claim 58, wherein the neuromodulation lead possesses a diameter less than 9 French.

60. (New) The neuromodulation system of claim 58, wherein the neuromodulation lead possesses a diameter less than 5 French.